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EXAMINER	
GUZMAN, APRIL S	

ART UNIT	PAPER NUMBER
2618	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/695,513	LOVE ET AL.	
	Examiner	Art Unit	
	APRIL S. GUZMAN	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 October 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date *04/01/04, 08/02/04, 03/05/07, 02/27/08, 03/14/08*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The Examiner acknowledges the receipt of the Applicant's amendment filed on 01/07/2008. Claims 1, 29, 31, & 36 are amended. Claims 51-52 are canceled. **Claims 1-50** are therefore currently pending in the present application.

Response to Arguments

Applicant's arguments filed 01/07/2008 have been fully considered but they are not persuasive.

Applicant argues Luschi does not teach the feature of **claim 1** of transmitting an uplink channel scheduling assignment that comprises a maximum power margin target. The Examiner respectfully disagrees because Luschi teach for both uplink and downlink it is possible to provide multiple dedicated control channels, all relying on the first dedicated physical channel for power control. Transmission power(s) of the each dedicated channel is/are selected dependent upon the transmission power of the first dedicated channel ([0015]-[0016]). For downlink signaling, the dedicated physical control channel (DPPCCH) contains Pilot bits, Transmit Power Control (TPC) bits for the uplink DPCCH, and Transport Format Combination Indicator (TFCI) bits for the HS-DSCH ([0062]). For uplink signaling, the dedicated physical control channel (DPPCCH) contains Pilot bits, Transmit Power Control (TPC) bits for DPDCH, and Feedback Information (FBI) bits to support Fast Site Selection and closed-loop transmit diversity ([0066]).

Consequently, in view of the above teachings of Luschi and having address Applicant's arguments, the previous rejection is maintained and made Final by the Examiner.

As **claims 2-10** directly or indirectly depend on claim 1, the Applicant's arguments are not persuasive in view of the sustained rejection of claim 1 explained above. Hence, the Examiner also maintains the previous rejection of claims 2-10.

With respect to **claim 11**, Applicant also argues that Kadaba does not teach retransmissions in the cited column 12, line 14 to column 13 line 7 and nowhere does Kadaba teach any buffering of control signaling at the BS, any combining, by the BS, of retransmitted control signaling with previously received control signaling to produce combined data, or a flushing of a H-ARQ buffer that stores control signaling. The Examiner respectfully disagrees because Kadaba teach in figure 7 a flow diagram of how the processing circuitry in a non-handoff wireless unit uses the control channel structure to operate in a scheduling mode. At block 116, the processing circuitry determines whether an ACK is received on F-UCACH. If not, the transmitter prepares for re-transmission at block 138 and proceeds to block 134. If so, the processing circuitry determines whether the buffer is empty at block 140. If the buffer is not empty, the transmitter prepares a new transmission at block 141 and goes to block 134. If the buffer is empty, the wireless unit sends a R-RUCH with zero buffer size at block 142. If at block 144 an ACK is received on F-UCACH, the processing circuitry exits the procedure at block 146 (column 10 lines 27-51, and column 11 lines 13-24). Kadaba further teaches wireless unit 150 transmits a data burst using appropriate power, rate and duration. BS 1 decode the data burst from the wireless unit 150 and sends an ACK/NACK. BS 2 decodes the data burst from the wireless unit 150 using the information in the R-EPFICH and sends ACK/NACK. The wireless unit 150 deems the transmission successful if either base station 152 or 154 ACKs. In the next transmission, the wireless unit 150 sends the R-EPFICH and the R-HCCH to flush out the buffer

of the base station that was unsuccessful in decoding the previous transmission (column 11 lines 54-67, and column 12 lines 1-13).

Consequently, in view of the above teachings of Kadaba and having address Applicant's arguments, the previous rejection is maintained and made Final by the Examiner.

As **claims 12-28** directly or indirectly depend on claim 11, the Applicant's arguments are not persuasive in view of the sustained rejection of claim 11 explained above. Hence, the Examiner also maintains the previous rejection of claims 12-28.

Applicant also argues that nowhere does either Luschi or Kadaba teach the features of **claim 29** of transmitting data in a first reverse link channel and a corresponding TFRI in a second reverse link channel, wherein the TFRI is determined by the MS based on interference information received from a BS. The Examiner respectfully disagrees because Luschi teach scheduling of the different users on the downlink shared channel is performed on the basis of the channel conditions and the UE negotiated Quality of Service. The actual transmission of one downlink shared channel is preceded by downlink signaling of: UE identification, modulation and coding scheme, channelization codes, and H-ARQ parameters on the corresponding UE control channel. UE identification is implicitly signaled by communicating the relevant Transport Format Combination Indicator (TFCI) only to the UE scheduled for transmission ([0046]-[0047]). The DPCCH contains Pilot bits, Transmit Power Control (TPC) bits for the uplink DPCCH, and Transport Format Combination Indicator (TFCI) bits for the HS-DSCH ([0062]-[0063]).

Consequently, in view of the above teachings of Luschi and having address Applicant's arguments, the previous rejection is maintained and made Final by the Examiner.

As **claims 30-40** directly or indirectly depend on claim 29, the Applicant's arguments are not persuasive in view of the sustained rejection of claim 29 explained above. Hence, the Examiner also maintains the previous rejection of claims 30-40.

Applicant argues that neither Luschi nor Kadaba, individually or in combination, teaches the features of **claims 45** of starting, by the BS, a timer upon transmitting first control data to an MS on a download control channel, and when a predetermined period of time expires prior to receiving second control data from the MS on an uplink control channel, flushing the traffic data buffer. The Examiner respectfully disagrees because Kadaba teaches a wireless unit that uses the control channel structure to operate in a scheduling mode with a waiting period indication option (read as timer) and transition to an autonomous mode. In figure 7, if at block 106, the F-UCACH is not received, the processing circuitry proceeds to block 120 to determine the estimated waiting period. If at block 122 the processing circuitry determines not to give up scheduling, the processing circuitry resets the waiting period timer (read as timer) and monitors the F-USCH at block 128. At block 116, the processing circuitry determines whether an ACK is received on F-UCACH. If not, the transmitter prepares for re-transmission at block 138 and proceeds to block 134. If so, the processing circuitry determines whether the buffer is empty at block 140. If the buffer is not empty, the transmitter prepares a new transmission at block 141 and goes to block 134. If the buffer is empty, the wireless unit sends a R-RUCH with zero buffer size at block 142. If at block 144 an ACK is received on F-UCACH, the processing circuitry exits the procedure at block 146 (column 10 lines 27-51, and column 11 lines 13-24). Kadaba further teaches BS 1 schedules the wireless unit 150 at time t1 whereby the base station assigns the wireless unit and the EPFs and informs the wireless unit of the schedule grant. The wireless

unit 150 transmits a data burst using appropriate power, rate and duration. BS 1 decode the data burst from the wireless unit 150 and sends an ACK/NACK at time t1 + burst duration + delta ms. BS 2 decodes the data burst from the wireless unit 150 using the information in the R-EPFICH and sends ACK/NACK at time t1 + burst duration + delta ms. The wireless unit 150 deems the transmission successful if either base station 152 or 154 ACKs. In the next transmission, the wireless unit 150 sends the R-EPFICH and the R-HCCH to flush out the buffer of the base station that was unsuccessful in decoding the previous transmission (column 11 lines 54-67, and column 12 lines 1-13). The forward and reverse link channel structure as well as the described system has been described for use in a 1xEVDV system for allocating of resources in transmitting data over the reverse link data channel (S-CH) (column 14 lines 13-31).

Consequently, in view of the above teachings of Kadaba and having address Applicant's arguments, the previous rejection is maintained and made Final by the Examiner.

Applicant also argues neither Luschi nor Kadaba, individually or in combination, teaches the features of **claim 50** of, upon transmitting first control data, starting, by the BS, a timer, and when a predetermined period of time expires prior to receiving second control data from the MS on an uplink control channel, deallocating, by the BD, demodulation resources allocated to a first uplink control channel associated with the MS while maintaining allocation of demodulation resources associated with a second uplink control channel that is associated with the MS. The Examiner respectfully disagrees because Kadaba teaches a wireless unit that uses the control channel structure to operate in a scheduling mode with a waiting period indication option (read as timer) and transition to an autonomous mode. In figure 7, if at block 106, the F-UCACH is not received, the processing circuitry proceeds to block 120 to determine the estimated waiting

period. If at block 122 the processing circuitry determines not to give up scheduling, the processing circuitry resets the waiting period timer (read as timer) and monitors the F-USCH at block 128. At block 116, the processing circuitry determines whether an ACK is received on F-UCACH. If not, the transmitter prepares for re-transmission at block 138 and proceeds to block 134. If so, the processing circuitry determines whether the buffer is empty at block 140. If the buffer is not empty, the transmitter prepares a new transmission at block 141 and goes to block 134. If the buffer is empty, the wireless unit sends a R-RUCH with zero buffer size at block 142. If at block 144 an ACK is received on F-UCACH, the processing circuitry exits the procedure at block 146 (column 10 lines 27-51, and column 11 lines 13-24). Kadaba further teaches BS 1 schedules the wireless unit 150 at time t1 whereby the base station assigns the wireless unit and the EPFs and informs the wireless unit of the schedule grant. The wireless unit 150 transmits a data burst using appropriate power, rate and duration. BS 1 decode the data burst from the wireless unit 150 and sends an ACK/NACK at time t1 + burst duration + delta ms. BS 2 decodes the data burst from the wireless unit 150 using the information in the R-EPFICH and sends ACK/NACK at time t1 + burst duration + delta ms. The wireless unit 150 deems the transmission successful if either base station 152 or 154 ACKs. In the next transmission, the wireless unit 150 sends the R-EPFICH and the R-HCCH to flush out the buffer of the base station that was unsuccessful in decoding the previous transmission (column 11 lines 54-67, and column 12 lines 1-13). The forward and reverse link channel structure as well as the described system has been described for use in a 1xEVDV system for allocating of resources in transmitting data over the reverse link data channel (S-CH) (column 14 lines 13-31).

Consequently, in view of the above teachings of Kadaba and having address Applicant's arguments, the previous rejection is maintained and made Final by the Examiner.

With respect to **claim 41**, Applicant also argues that the flushing taught by Kadaba is not based on any environmental conditions observed by the BS at the BS. The Examiner respectfully disagrees because Kadaba teach BS monitors the wireless unit's reverse channels. The wireless unit 150 deems the transmission successful if either base station 152 or 154 ACKs. In the next transmission, the wireless unit 150 sends the R-EPFICH and the R-HCCH to flush out the buffer of the base station that was successful in decoding the previous transmission. When the wireless unit 150 moves out of handoff, it can change the scheduling base station by transmitting the R-RUCH (Kadaba - column 11 lines 54-67, and column 12 lines 1-13). Gopalakrishnan is relied upon to specifically teach data users are scheduled to transmit based on parameters such as the quality of service, the amount of data to be transmitted, the time since the last transmission and the time criticality of the data to be transmitted. Scheduling is scheduled so that the users are treated fairly, interference to other cells or sectors is minimized and the utilization of received data budget is maximized (Gopalakrishnan – column 4 lines 35-43). The mobile stations requests size of traffic data to be transmitted, information about mobile capabilities related to its power class, some auxiliary information related to the transmission, and QoS parameters or requirements such as delay or throughput bounds for the RL traffic channel. The BS stores the above information and measures channel conditions. The BS computes a schedule based on the information it has received from all users and the information it has processed (Gopalakrishnan - column 4 lines 43-65).

Consequently, in view of the above teachings of Kadaba and Gopalakrishnan and having address Applicant's arguments, the previous rejection is maintained and made Final by the Examiner.

As **claims 42-44** directly or indirectly depend on claim 41, the Applicant's arguments are not persuasive in view of the sustained rejection of claim 41 explained above. Hence, the Examiner also maintains the previous rejection of claims 42-44.

With respect to **claim 46**, Applicant also argues that nowhere in the cited section of Kadaba does Kadaba teach any deallocation, by the BS, of demodulation resources allocated to a first uplink channel associated with the MS while maintaining allocation of demodulation resources associated with a second uplink control channel that is associated with the MS. The Examiner respectfully disagrees because Kadaba teach the forward and reverse link channel structure as well as the described system has been described for use in a 1xEVDV system for allocating of resources in transmitting data over the reverse link data channel (S-CH) (column 14 lines 13-31). The wireless unit 150 deems the transmission successful if either base station 152 o 154 ACKs. The next transmission, the wireless unit 150 sends the R-EPFICH and R-HCCH to flush out the buffer of the base station that was unsuccessful in decoding the previous transmission (column 12 lines 1-13).

Consequently, in view of the above teachings of Kadaba and Gopalakrishnan and having address Applicant's arguments, the previous rejection is maintained and made Final by the Examiner.

As **claims 47-49** directly or indirectly depend on claim 46, the Applicant's arguments are not persuasive in view of the sustained rejection of claim 46 explained above. Hence, the Examiner also maintains the previous rejection of claims 47-49.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-14, 16-26, 28-36, 38-40, 45, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Luschi et al. (U.S. Patent Application Publication # 2003/0045288 A1)** in view of **Kadaba et al. (U.S. Patent # 7,158,504)**.

Consider **claim 1**, Luschi et al. a method for scheduling mobile station uplink transmissions by a base station (Abstract, Figure 1, [0014], and [0026]) comprising steps of:

receiving scheduling information from at least one mobile station of the plurality of mobile stations, wherein the scheduling information comprises at least one of a queue status and a power status of the at least one mobile station ([0015]-[0016], [0021]-[0022], [0042], [0047], and [0056]-[0057]);

selecting a mobile station of the plurality of mobile stations and determining an uplink channel scheduling assignment for the selected mobile station using at least one of the scheduling information and a link quality corresponding to the selected mobile station ([0027], [0045]-[0046], and [0054]-[0055]); and

transmitting the uplink channel scheduling assignment to the selected mobile station, wherein the uplink channel scheduling assignment comprises a maximum power margin target ([0045]-[0046]).

However, Luschi et al. fail to teach a base station interference metric.

In the related art, Kadaba et al. teach a base station interference metric (column 1 lines 54-65, column 3 lines 22-30, column 7 lines 8-35, and column 7 lines 36-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Kadaba et al. into the teachings of Luschi et al. for the purpose of providing fast scheduling that can deliver significant gains via higher data

rates/shorter frames and hence better aggregate throughput even after considering the higher overheads.

Consider **claim 2, as applied to claim 1 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the scheduling information is received via a reverse link control channel (Luschi et al. – [0047]).

Consider **claim 3, as applied to claim 1 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the power status corresponds to a power level of a Dedicated Physical Control Channel (DPCCH) (Luschi et al. – [0062]).

Consider **claim 4, as applied to claim 1 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the power status is based on a difference between a Dedicated Physical Control Channel (DPCCH) power level and a maximum power level supported by the mobile station (Luschi et al. – [0015]-[0016]).

Consider **claim 5, as applied to claim 1 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the queue status corresponds to a size of a data queue (Kadaba et al. – column 4 lines 56-67, and column 5 lines 1-17).

Consider **claim 6, as applied to claim 5 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the queue status further indicates a size of a layer 3 signaling queue (Kadaba et al. – column 4 lines 56-67, and column 5 lines 1-17).

Consider **claim 7, as applied to claim 5 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the queue status further indicates that a layer 3 signaling queue is non-empty (Kadaba et al. – column 4 lines 56-67, column 5 lines 1-17, column 9 lines 61-67, and column 10 lines 1-4).

Consider **claim 8, as applied to claim 1 above**, Luschi et al. as modified by Kadaba et al. further teach further comprising conveying base station interference information to the selected mobile station via a forward link control channel (Kadaba et al. – column 1 lines 54-65, column 3 lines 22-30, column 7 lines 8-35, and column 7 lines 36-65).

Consider **claim 9, as applied to claim 1 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the link quality is the link quality of an uplink channel from the selected mobile station (Luschi et al. – [0045]-[0047], and Kadaba et al. – column 4 lines 46-55, and column 5 lines 28-52).

Consider **claim 10, as applied to claim 1 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the link quality is the link quality of a downlink channel from a base station to the selected mobile station (Luschi et al. – [0045]-[0047], and Kadaba et al. – column 4 lines 46-55, and column 7 lines 8-61).

Consider **claim 11**, Luschi et al. a method for scheduling a mobile station transmission (Abstract, [0014], and [0026]) comprising:

scheduling, by a base station of a plurality of base stations, a mobile station of a plurality of mobile stations for a transmission interval based on scheduling information received from each mobile station of the plurality of mobile stations and further based on a link quality metric ([0015]-[0016], [0021]-[0022], [0027], [0042], [0045]-[0047], and [0054]-[0057]); and

receiving, by the base station from the scheduled mobile station, a first transmission of data, which transmission of data is conveyed by the mobile station during the transmission interval and comprises transport format and resource-related information (TFRI) ([0046]-[0047], [0049]-[0050], [0062], and [0066]).

However, Luschi et al. fail to teach decoding the first transmission of the data; when the first transmission of the data is not successfully decoded, receiving, by the base station, communications from the scheduled mobile station corresponding to at least one retransmission of the data; combining, by the base station, each of the at least one retransmission of the data with the previously received data to produce combined data until the first to occur of a successful decoding of the combined data or a flushing of a Hybrid Automatic Repeat Request (H-ARQ) buffer; when one of the first transmission of data and the combined data is successfully decoded, conveying an acknowledgment to the mobile station; and in response to conveying the acknowledgment, flushing the H-ARQ buffer.

In the related art, Kadaba et al. teach decoding the first transmission of the data; when the first transmission of the data is not successfully decoded, receiving, by the base station, communications from the scheduled mobile station corresponding to at least one retransmission of the data; combining, by the base station, each of the at least one retransmission of the data with the previously received data to produce combined data until the first to occur of a successful decoding of the combined data or a flushing of a Hybrid Automatic Repeat Request (H-ARQ) buffer; when one of the first transmission of data and the combined data is successfully decoded, conveying an acknowledgment to the mobile station; and in response to conveying the acknowledgment, flushing the H-ARQ buffer (column 12 lines 14-42, or column 12 lines 43-67 and column 13 lines 1-7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Kadaba et al. into the teachings of Luschi et al. for the purpose of providing fast scheduling that can deliver significant gains via higher data

rates/shorter frames and hence better aggregate throughput even after considering the higher overheads.

Consider **claim 12, as applied to claim 11 above**, Luschi et al. as modified by Kadaba et al. further teach wherein flushing the Hybrid Automatic Repeat Request (H-ARQ) buffer comprises in response to conveying the acknowledgment, receiving an instruction to flush the H-ARQ buffer and flushing the buffer (Kadaba et al. - column 12 lines 14-42, or column 12 lines 43-67 and column 13 lines 1-7).

Consider **claim 13, as applied to claim 11 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the transport format and resource-related information (TFRI) is received via a reverse link control channel (Kadaba et al. – column 5 lines 52-67, and column 6 lines 1-15).

Consider **claim 14, as applied to claim 11 above**, Luschi et al. as modified by Kadaba et al. further teach comprising, when the combined data is not successfully decoded prior to an expiration of a timer, flushing the Hybrid Automatic Repeat Request (H-ARQ) buffer (Kadaba et al. – column 10 lines 27-67, column 11 lines 1-23, and column 12 lines 14-42).

Consider **claim 16, as applied to claim 11 above**, Luschi et al. as modified by Kadaba et al. further teach comprising: receiving a new data indicator; and flushing the Hybrid Automatic Repeat Request (H-ARQ) buffer based on a state of the received data indicator (Kadaba et al. – column 6 lines 29-62, and column 12 lines 14-42).

Consider **claim 17, as applied to claim 11 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the scheduling information is received via a first reverse link control channel and the transport format and resource-related information (TFRI) is received via a

second reverse link control channel (Luschi et al. – [0047]; Kadaba et al. – column 4 lines 46-55, column 5 lines 28-67, and column 6 lines 1-15).

Consider **claim 18, as applied to claim 11 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the scheduling information is received via a first reverse link control channel and the transport format and resource-related information (TFRI) is blindly detected by a receiving base station (Luschi et al. – [0047]; Kadaba et al. – column 4 lines 46-55, column 5 lines 28-67, and column 6 lines 1-15).

Consider **claim 19, as applied to claim 11 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the scheduling information comprises power status and queue status information (Luschi et al. - [0015]-[0016], [0021]-[0022], [0042], [0047], and [0056]-[0057]).

Consider **claim 20, as applied to claim 19 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the power status corresponds to a power level of a Dedicated Physical Control Channel (DPCCH) (Luschi et al. – [0062]).

Consider **claim 21, as applied to claim 19 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the power status is based on a difference between a Dedicated Physical Control Channel (DPCCH) power level and the maximum power level supported by the mobile station (Luschi et al. – [0015]-[0016]).

Consider **claim 22, as applied to claim 19 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the queue status corresponds to a size of a data queue (Kadaba et al. – column 4 lines 56-67, and column 5 lines 1-17).

Consider **claim 23, as applied to claim 22 above**, Luschi et al. as modified by Kadaba et al. further tea wherein the queue status further indicates a size of a layer 3 signaling queue (Kadaba et al. – column 4 lines 56-67, and column 5 lines 1-17).

Consider **claim 24, as applied to claim 22 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the queue status further indicates that a layer 3 signaling queue is non-empty (Kadaba et al. – column 4 lines 56-67, column 5 lines 1-17, column 9 lines 61-67, and column 10 lines 1-4).

Consider **claim 25, as applied to claim 11 above**, Luschi et al. as modified by Kadaba et al. further teach comprising conveying base station interference information to the selected mobile station via a forward link control channel (Kadaba et al. – column 1 lines 54-65, column 3 lines 22-30, column 7 lines 8-35, and column 7 lines 36-65).

Consider **clam 26, as applied to claim 25 above**, Luschi et al. as modified by Kadaba et al. further teach comprising mapping one or more sub-frames of the transmission interval to associated transport format and resource-related information (TFRI) (Kadaba et al. – column 5 lines 52-67, and column 6 lines 1-28).

Consider **claim 28, as applied to claim 11 above**, Luschi et al. as modified by Kadaba et al. further teach wherein scheduling comprises informing the mobile station of a number of sub-frames on which the mobile station may transmit and a location of the sub-frames in the transmission interval (Kadaba et al. – column 5 lines 17-28, column 5 lines 42-52, column 6 lines 15-28, column 6 lines 63-67, and column 7 lines 1-8).

Consider **claim 29**, Luschi et al. a method for transmitting data by a mobile station (Abstract, Figure 1, [0014], and [0026]) comprising steps of:

receiving, at the mobile station, interference information associated with a base station [0015], [0027], [0046], and [0060]);

determining, by the mobile station, transport format and resource-related information (TFRI) based on the received interference information ([0046]-[0047], [0049]-[0050], [0062], and [0066]);

transmitting data in a first reverse link channel ([0047]).

However, Luschi et al. fail to teach transmitting the TFRI in a second reverse link channel, wherein the TFRI can be used to demodulate and decode the transmitted data.

In the related art, Kadaba et al. teach transmitting the TFRI in a second reverse link channel, wherein the TFRI can be used to demodulate and decode the transmitted data (column 4 lines 46-55, column 5 lines 28-67, and column 6 lines 1-15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Kadaba et al. into the teachings of Luschi et al. for the purpose of providing fast scheduling that can deliver significant gains via higher data rates/shorter frames and hence better aggregate throughput even after considering the higher overheads.

Consider **claim 30, as applied to claim 29 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the transport format and resource-related information (TFRI) is transmitted via a second reverse link control channel (Kadaba et al. - column 4 lines 46-55, column 5 lines 28-67, and column 6 lines 1-15).

Consider **claim 31, as applied to claim 29 above**, Luschi et al. as modified by Kadaba et al. further teach wherein receiving comprises receiving a scheduling assignment that comprises

the interference information associated with a base station (Kadaba et al. - column 1 lines 54-65, column 3 lines 22-30, column 4 lines 36-55, column 5 lines 28-67, column 6 lines 1-15, column 7 lines 8-35, and column 7 lines 36-65).

Consider claim 32, as applied to claim 31 above, Luschi et al. as modified by Kadaba et al. further teach wherein receiving a scheduling assignment comprises receiving a plurality of scheduling assignments from a plurality of base stations, wherein each scheduling assignment of the plurality of scheduling assignments is associated with interference information, and wherein the method further comprises choosing a scheduling assignment of the plurality of scheduling assignments based on the associated interference information (Kadaba et al. – column 7 lines 8-67).

Consider **claim 33, as applied to claim 32 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the interference information associated with each scheduling assignment comprises transport format and resource-related information (TFRI) (Kadaba et al. – column 7 lines 8-67).

Consider **claim 34, as applied to claim 32 above**, Luschi et al. as modified by Kadaba et al. further teach comprising determining the corresponding transport format and resource-related information (TFRI) transmitted in the second reverse link channel based on the TFRI of only one base station of the plurality of base stations (Kadaba et al. – column 7 lines 8-67).

Consider **claim 35, as applied to claim 31 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the scheduling assignment is received via a forward link control channel (Kadaba et al. – column 7 lines 8-67).

Consider **claim 36, as applied to claim 29 above**, Luschi et al. as modified by Kadaba et al. further teach wherein receiving comprises receiving interference information from a plurality of base stations and wherein determining comprises determining the corresponding transport format and resource-related information (TFRI) transmitted in the second reverse link channel based on interference information of only one base station of the plurality of base stations (Kadaba et al. - column 1 lines 54-65, column 3 lines 22-30, column 4 lines 36-55, column 5 lines 28-67, column 6 lines 1-15, column 7 lines 8-35, and column 7 lines 36-65).

Consider **claim 38, as applied to claim 29 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the first reverse link channel and the second reverse link channel are time multiplexed on a same physical control channel such that, in a given transmission interval, either a first reverse link channel ten (10) millisecond (ms) frame format is used or a second reverse link channel two (2) millisecond (ms) frame format is used (Kadaba et al. – column 5 lines 28-67, and column 6 lines 1-28).

Consider **claim 39, as applied to claim 38 above**, Luschi et al. as modified by Kadaba et al. further teach wherein when there is not a scheduled transmission interval then the first reverse link channel ten (10) millisecond (ms) frame format is used and when there is a scheduled transmission interval then the second reverse link channel two (2) millisecond (ms) frame format is used (Kadaba et al. – column 5 lines 28-67, column 6 lines 1-28, column 7 lines 8-61, and column 12 lines 14-42).

Consider **claim 40, as applied to claim 29 above**, Luschi et al. as modified by Kadaba et al. further teach wherein the second reverse link channel has a first part and a second part, wherein the second part can be decoded separate from the first part, and wherein the first part

comprises block size and modulation and coding information and the second part comprises Hybrid Automatic Repeat Request (H-ARQ) and Incremental Redundancy version information (Luschi et al. – [0047], and [0050]; and Kadaba et al. – column 4 lines 34-67, column 5 lines 1-17, column 5 lines 52-67, column 6 lines 1-15, and column 6 lines 28-62).

Consider **claim 45**, Luschi et al. a method for controlling communications with a mobile station by a base station (Abstract, Figure 1, [0014], and [0026]) comprising steps of:

storing, by the base station, traffic data from the mobile station in a traffic data buffer ([0047], and [0056]).

However, Luschi et al. fail to teach transmitting, by the base station, first control data to the mobile station on a downlink control channel; upon transmitting the first control data, starting, by the base station, a timer; and when a predetermined period of time expires prior to receiving second control data from the mobile station on an uplink control channel, flushing the traffic data buffer.

In the related art, Kadaba et al. teach transmitting, by the base station, first control data to the mobile station on a downlink control channel (column 7 lines 8-61);

upon transmitting the first control data, starting, by the base station, a timer; and when a predetermined period of time expires prior to receiving second control data from the mobile station on an uplink control channel, flushing the traffic data buffer (column 10 lines 27-67, column 11 lines 1-13, column 12 lines 14-67, and column 13 lines 1-7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Kadaba et al. into the teachings of Luschi et al. for the purpose of providing fast scheduling that can deliver significant gains via higher data

rates/shorter frames and hence better aggregate throughput even after considering the higher overheads.

Consider **claim 50**, Luschi et al. a method for controlling communications with a mobile station by a base station (Abstract, Figure 1, [0014], and [0026]).

However, Luschi et al. fail to teach transmitting, by the base station, first control data to the mobile station on a downlink control channel; upon transmitting the first control data, starting, by the base station, a timer; and when a predetermined period of time expires prior to receiving second control data from the mobile station on an uplink control channel, deallocating, by the base station, demodulation resources allocated to a first uplink control channel associated with the mobile station while maintaining allocation of demodulation resources associated with a second uplink control channel that is associated with the mobile station.

In the related art, Kadaba et al. teach transmitting, by the base station, first control data to the mobile station on a downlink control channel (column 7 lines 8-61);

upon transmitting the first control data, starting, by the base station, a timer; and when a predetermined period of time expires prior to receiving second control data from the mobile station on an uplink control channel, deallocating, by the base station, demodulation resources allocated to a first uplink control channel associated with the mobile station while maintaining allocation of demodulation resources associated with a second uplink control channel that is associated with the mobile station (column 10 lines 27-67, column 11 lines 1-13, column 12 lines 14-67, and column 13 lines 1-7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Kadaba et al. into the teachings of Luschi et

al. for the purpose of providing fast scheduling that can deliver significant gains via higher data rates/shorter frames and hence better aggregate throughput even after considering the higher overheads.

Claims 15, 27, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Luschi et al. (U.S. Patent Application Publication # 2003/0045288 A1)** in view of **Kadaba et al. (U.S. Patent # 7,158,504)**, and further in view of **Gopalakrishnan et al. (U.S. Patent # 6,836,666)**.

Consider **claim 15, as applied to claim 11 above**, Luschi et al. as modified by Kadaba et al. teach first dedicated physical channel for power control and flushing the Hybrid Automatic Repeat Request (H-ARQ) buffer.

However, Luschi et al. as modified by Kadaba et al. fail to teach comprising: determining a reverse link power control metric; comparing the reverse link power control metric to an inner loop power control setpoint; and the reverse link power control metric compares unfavorably with the inner loop power control setpoint.

In the related art, Gopalakrishnan et al. teach determining a reverse link power control metric; comparing the reverse link power control metric to an inner loop power control setpoint; and the reverse link power control metric compares unfavorably with the inner loop power control setpoint (column 4 lines 43-67, column 5 lines 1-29, column 6 lines 24-43, column 7 lines 42-67, column 8 lines 1-23, and column 9 lines 12-65)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Gopalakrishnan et al. into the teachings of

Luschi et al. as modified by Kadaba et al. for the purpose of providing a balance between network throughput and user level QoS via a combination of fast rate adaptation and centralized scheduling at the BS in addition to enabling fast scheduling and enables the use of advanced techniques such as H-ARQ and various flavors of incremental redundancy and are aimed at improving network and user performance.

Consider **claim 27, as applied to claim 25 above**, Luschi et al. as modified by Kadaba et al. teach conveying base station interference information to the selected mobile station via a forward link control channel.

However, Luschi et al. as modified by Kadaba et al. fail to teach comprising determining a maximum Enhanced Uplink Dedicated Transport Channel (EUDCH) to Dedicated Physical Control Channel (DPCCH) (DPPCH) power ratio for the mobile station based on base station interference information.

In the related at, Gopalakrishnan et al. teach comprising determining a maximum Enhanced Uplink Dedicated Transport Channel (EUDCH) to Dedicated Physical Control Channel (DPCCH) (DPPCH) power ratio for the mobile station based on base station interference information (column 4 lines 43-67, column 5 lines 1-29, column 7 lines 42-67, column 8 lines 1-23, and column 9 lines 12-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Gopalakrishnan et al. into the teachings of Luschi et al. as modified by Kadaba et al. for the purpose of providing a balance between network throughput and user level QoS via a combination of fast rate adaptation and centralized scheduling at the BS in addition to enabling fast scheduling and enables the use of advanced

techniques such as H-ARQ and various flavors of incremental redundancy and are aimed at improving network and user performance.

Consider **claim 37, as applied to claim 36 above**, Luschi et al. as modified by Kadaba et al. teach receiving interference information from a plurality of base stations; and determining the corresponding transport format and resource-related information (TFRI) transmitted in the second reverse link channel based on interference information of only one base station of the plurality of base stations.

However, Luschi et al. as modified by Kadaba et al. fail to teach wherein determining comprises determining the transport format and resource-related information (TFRI) based on a base station with a largest Enhanced Uplink Dedicated Transport Channel (EUDCH) to Dedicated Physical Control Channel (DPCCH) (DPPCH) power ratio.

In the related art, Gopalakrishnan et al. teach wherein determining comprises determining the transport format and resource-related information (TFRI) based on a base station with a largest Enhanced Uplink Dedicated Transport Channel (EUDCH) to Dedicated Physical Control Channel (DPCCH) (DPPCH) power ratio (column 4 lines 43-67, column 5 lines 1-29, column 7 lines 42-67, column 8 lines 1-23, and column 9 lines 12-65).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Gopalakrishnan et al. into the teachings of Luschi et al. as modified by Kadaba et al. for the purpose of providing a balance between network throughput and user level QoS via a combination of fast rate adaptation and centralized scheduling at the BS in addition to enabling fast scheduling and enables the use of advanced

techniques such as H-ARQ and various flavors of incremental redundancy and are aimed at improving network and user performance.

Claims 41-44, and 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kadaba et al. (U.S. Patent # 7,158,504)** in view of **Gopalakrishnan et al. (U.S. Patent # 6,836,666)**.

Consider **claim 41**, Kadaba et al. a method for controlling communications with a mobile station by a base station (Abstract, and column 3 lines 8-30) comprising steps of:

storing, by the base station, traffic data from the mobile station in a traffic data buffer (column 4 lines 56-67, and column 5 lines 1-17);

determining a link quality metric at the base station (column 5 lines 18-51); and

flushing the traffic data buffer (column 12 lines 14-67, and column 13 lines 1-7).

However, Kadaba et al. fail to teach comparing the link quality metric to a threshold; and the link quality metric compares unfavorably with the threshold.

In the related art, Gopalakrishnan et al. teach comparing the link quality metric to a threshold; and the link quality metric compares unfavorably with the threshold (column 4 lines 43-67, column 5 lines 1-29, and column 6 lines 24-43).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Gopalakrishnan et al. into the teachings of Kadaba et al. for the purpose of providing a balance between network throughput and user level QoS via a combination of fast rate adaptation and centralized scheduling at the BS in addition to

enabling fast scheduling and enables the use of advanced techniques such as H-ARQ and various flavors of incremental redundancy and are aimed at improving network and user performance.

Consider **claim 42, as applied to claim 41 above**, Kadaba et al. as modified by Gopalakrishnan et al. further teach wherein the link quality metric comprises a reverse link power control metric and wherein comparing comprises comparing the reverse link power control metric to an inner loop power control setpoint (Gopalakrishnan et al. - column 4 lines 43-67, column 5 lines 1-29, column 6 lines 24-43, column 7 lines 42-67, column 8 lines 1-23, and column 9 lines 12-65).

Consider **claim 43, as applied to claim 42 above**, Kadaba et al. as modified by Gopalakrishnan et al. further teach wherein the threshold comprises a first threshold and wherein the link quality metric compares unfavorably with a threshold when a ratio of the reverse link power control metric to an inner loop power control setpoint exceeds a second threshold (Gopalakrishnan et al. - column 4 lines 43-67, column 5 lines 1-29, column 6 lines 24-43, column 7 lines 42-67, column 8 lines 1-23, and column 9 lines 12-65).

Consider **claim 44, as applied to claim 43 above**, Kadaba et al. as modified by Gopalakrishnan et al. further teach wherein the link quality metric is computed based on a reverse link pilot signal (Kadaba et al. – column 5 lines 28-51; Gopalakrishnan et al. - column 4 lines 43-67, column 5 lines 1-29, column 6 lines 24-43, column 7 lines 42-67, column 8 lines 1-23, and column 9 lines 12-65).

Consider **claim 46**, Kadaba et al. teach a method for controlling communications with a mobile station by a base station (Abstract, and column 3 lines 8-30) comprising steps of:

determining, by the base station, a link quality metric at the base station (column 5 lines 18-51); and

deallocating, by the base station, demodulation resources allocated to a first uplink control channel associated with the mobile station while maintaining allocation of demodulation resources associated with a second uplink control channel that is associated with the mobile station (column 12 lines 14-67, and column 13 lines 1-7).

However, Kadaba et al. fail to teach comparing, by the base station, the link quality metric to a threshold; and the link quality metric compares unfavorably with the threshold.

In the related art, Gopalakrishnan et al. teach comparing, by the base station, the link quality metric to a threshold; and the link quality metric compares unfavorably with the threshold (column 4 lines 43-67, column 5 lines 1-29, and column 6 lines 24-43).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Gopalakrishnan et al. into the teachings of Kadaba et al. for the purpose of providing a balance between network throughput and user level QoS via a combination of fast rate adaptation and centralized scheduling at the BS in addition to enabling fast scheduling and enables the use of advanced techniques such as H-ARQ and various flavors of incremental redundancy and are aimed at improving network and user performance.

Consider **claim 47, as applied to claim 46 above**, Kadaba et al. as modified by Gopalakrishnan et al. further teach wherein the link quality metric comprises a reverse link power control metric and wherein comparing comprises comparing the reverse link power control metric to an inner loop power control setpoint (Gopalakrishnan et al. - column 4 lines 43-

67, column 5 lines 1-29, column 6 lines 24-43, column 7 lines 42-67, column 8 lines 1-23, and column 9 lines 12-65).

Consider **claim 48, as applied to claim 47 above**, Kadaba et al. as modified by Gopalakrishnan et al. further teach wherein the threshold comprises a first threshold and wherein the link quality metric compares unfavorably with a threshold when a ratio of the reverse link power control metric to an inner loop power control setpoint exceeds a second threshold (Gopalakrishnan et al. - column 4 lines 43-67, column 5 lines 1-29, column 6 lines 24-43, column 7 lines 42-67, column 8 lines 1-23, and column 9 lines 12-65).

Consider **claim 49, as applied to claim 48 above**, Kadaba et al. as modified by Gopalakrishnan et al. further teach wherein the link quality metric is computed based on a reverse link pilot signal (Kadaba et al. – column 5 lines 28-51; Gopalakrishnan et al. - column 4 lines 43-67, column 5 lines 1-29, column 6 lines 24-43, column 7 lines 42-67, column 8 lines 1-23, and column 9 lines 12-65).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: see PTO-892 Notice of References Cited.

Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to April S. Guzman whose telephone number is 571-270-1101. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lana Le can be reached on 571-272-7891. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April S. Guzman
A.S.G/asg

/A. S. G./
Examiner, Art Unit 2618

/Lana N. Le/
Acting SPE of Art Unit 2618